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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Tsuneo Maruyama

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EXAMINER

PILKINGTON, JAMES

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,739	Applicant(s) MARUYAMA ET AL.	
	Examiner JAMES PILKINGTON	Art Unit 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 7-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/16/09, 7/30/09, 7/30/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 7-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 21, 2009.

Claim Objections

Claim 2 is objected to because of the following informalities:

Lines 2-3 recite "wherein the enlarged diameter parts...in the longitudinal direction thereof, respectively," which is repetitive of claim 1 lines 5-7, this limitation should either be removed from claim 1 or claim 2.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-6 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the line obliquely extending" in line 2. There is insufficient antecedent basis for this limitation in the claim. This limitation first appears in claim 2.

Claim 3 recites the limitation "the journal part facing the inclined surface of the enlarged diameter part across the middle of the bearing body" in lines 3-4. There is

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insufficient antecedent basis for this limitation in the claim. In particular, the claims do not set forth that the journal part faces the inclined surface anywhere along the length of the bearing. Claim 1 sets forth that the enlarged diameter parts are at the ends of the journal part, if this is the case how can these surfaces be facing each other?

Claim 3 is unclear since it can not be determined where the "distance" is being measured. It appears that the claim is attempting to claim a distance from the inclined surface to the journal part is substantially equal to the diameter of the shaft, but wouldn't this be greater than the shaft if the journal part is sized to receive the shaft and the inclined surface is has a diameter greater than the shaft? Between what to points is the distance being measured?

Claim 4 recites the limitation "the taper angles" in line 3. There is insufficient antecedent basis for this limitation in the claim. This limitation first appears in claim 2.

Claim 5 recites the limitation "the taper angles" in line 2. There is insufficient antecedent basis for this limitation in the claim. This limitation first appears in claim 2.

Claim 5 recites the limitation "the enlarged diameter parts positioned farther from the journal part has a larger taper angle" in line 4. There is insufficient antecedent basis for this limitation in the claim. It appears that by claiming that "the enlarged diameter parts are formed stepwise" Applicant is attempting to say that each enlarged diameter part comprises a first enlarged diameter part and a second enlarged diameter part. If this is the case Applicant should amend the claim to explicitly state this feature since forming surfaces stepwise as currently written is a product-by-process limitation that does not structurally limit the claim. Perhaps claim 5 should read - - wherein each of

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the enlarged diameter parts comprises a first enlarged diameter part and a second enlarged diameter part positioned adjacent to each other, the second enlarged diameter part being positioned further from the journal part than the first enlarged diameter part, the first enlarged diameter part having a taper angle with respect to the longitudinal direction that is different from a taper angle of the second enlarged diameter part, and wherein the taper angle of the second enlarged diameter part is larger than the taper angle of the first enlarged diameter part- -.

Claim 10 lines 7-11 it is unclear what Applicant is attempting to claim. It appears that Applicant is attempting to claim how the surfaces within the bearing are formed; however, the phrasing of the limitations doesn't clearly reflect this. If Applicant is indeed attempting to claim how the surfaces are formed the phrase "is formed" at the end of each clause should be removed and each clause rewritten to recite - -formed by pressing- - and - -formed by re-pressing- -.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka, US PGPub 2002/0001420.

Regarding claim 1, Tanaka discloses an oil-impregnated sintered bearing comprising: a bearing body (30) made of a sintered metal to support a rotating shaft

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(14) by an inner surface thereof as a friction surface, said bearing body (30) having a bearing hole (31) therein; wherein the bearing hole (31) includes a journal part that has a constant diameter (32), and enlarged diameter parts (33) that are provided on both sides of the journal part in the longitudinal direction thereof, respectively, so as to be connected with the journal part.

Regarding claim 2, Tanaka discloses a taper angle with respect to the longitudinal direction of one enlarged diameter part (incline on 33) which is provided on one side of the journal part (32), and a taper angle (incline of second surface 33) with respect to the longitudinal direction of the other enlarged diameter part (33), which is provided on the other side of the journal part (32) are equal to each other (see Figure 10), and a line obliquely extending along an inclined surface of one enlarged diameter part is arranged parallel to a line obliquely extending along an inclined surface of the other enlarged diameter part, and a distance between the lines is substantially equal to the diameter of the rotating shaft (paragraphs 0040-0042, surfaces 33 are sized to support the shaft even when inclined).

Regarding claim 3, as best understood, Tanaka discloses that a distance between the line obliquely extending along an inclined surface of the enlarged diameter part (33) and the journal part facing the inclined surface of the enlarged diameter part across the middle of the bearing body is substantially equal to the diameter of the rotating shaft (the journal portion and the enlarged diameter parts are sized to accept the shaft with little movement there between and are therefore both substantially equal to the diameter of the shaft).

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Regarding claim 5, as best understood, Tanaka discloses wherein the enlarged diameter parts are formed stepwise (first surface 33 and additional taper at the openings, see Figure 10) so that the taper angles with respect to the longitudinal direction of the enlarged diameter parts are different from each other, and the enlarged diameter parts positioned farther from the journal part has a larger taper angle (see Figure 10).

Regarding claim 10, as best understood, Tanaka discloses an oil-impregnated sintered bearing which includes a bearing body (30) made of a sintered metal to support a rotating shaft (14), the bearing body (30) having a bearing hole (31) formed therein, the bearing hole (31) including a journal part (32) of which an inner surface as a friction surface has a constant diameter and enlarged diameter parts (33) that are provided so as to be connected with the journal part (32) and are formed in a tapered shape (see Figure 10) having diameters to be enlarged toward the tips thereof, wherein the bearing hole (31) that includes the journal part (32) having a constant diameter by pressing an inner circumferential surface of a cylindrical sintered body completely sintered is formed; and the enlarged diameter parts so as to be connected with the journal part by re-pressing the inner circumferential surface of the cylindrical sintered body is formed (the method in which the surfaces are formed are product-by-process limitations in an apparatus claim since the method of forming the surfaces does not alter the structure of the final device).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka, USP PGPub 2002/0001420.

Tanaka discloses all of the claimed subject matter as applied to claims 1 and 5 above.

Tanaka does not state that the taper angles with respect to the longitudinal direction of the enlarged diameter parts are 3° or less with respect to the journal portion or adjacent enlarged diameter parts.

Since the applicant is silent to any criticality or unexpected results from having the angle set at 3 degrees or less it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Tanaka and provide an angle of 3 degrees or less since the device would perform perfectly well with any acute angle, the particular angle of 3 degrees is a matter of design choice. The amount of the angle provides the predictable result of limiting of movement within the shaft and one of ordinary skill in the art would design the bearing with the appropriate angle to limit the range of movement based on the application of the bearing.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP11230160, cited by Applicant, shows multiple tapered surfaces

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but it is not clear if any particular angle or a sintered metal is disclosed (it is noted that a translation has been requested) and USP 5,896,240 discloses a sintered bearing with tapered surfaces on either end and is pertinent to at least claim 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES PILKINGTON whose telephone number is (571)272-5052. The examiner can normally be reached on Monday - Friday 7-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JAMES PILKINGTON/
Examiner, Art Unit 3656
10/14/09
/Thomas R. Hannon/
Primary Examiner, Art Unit 3656